



## General

### Guideline Title

Emergency nursing resource: wound preparation.

### Bibliographic Source(s)

ENA Emergency Nursing Resources Development Committee. Emergency nursing resource: wound preparation. Des Plaines (IL): Emergency Nurses Association; 2011 Dec. 8 p. [16 references]

### Guideline Status

This is the current release of the guideline.

## Recommendations

### Major Recommendations

The grades of recommendations (A–C, Not Recommended), levels of evidence (I–VII), and quality of evidence (I–IV) are defined at the end of the "Major Recommendations" field.

#### Description of Decision Options/Interventions and the Level of Recommendation

1. Irrigation with a syringe and needle/catheter is more effective than bulb syringe irrigation for laceration cleansing and irrigation across the lifespan. Level A – High (Stevenson et al., 1976; Longmire, Broom, & Burch, 1987).
2. Potable tap water is equivalent and may be superior to normal saline for laceration cleansing and irrigation in patients across the lifespan. Level A – High (Fernandez, Griffiths, & Ussia, 2010).
3. Cleansing or irrigation may not be required for low-risk patients\* with clean facial/scalp lacerations of less than six hours in both adult and pediatric patients. Level B – Moderate (Hollander et al., 1998)

\*Low-risk patients refers to patients with clean, non-contaminated lacerations and without significant co-morbidities (e.g., diabetes, renal disease, or immuno-compromised).

#### Definitions:

#### Levels of Recommendation for Practice

##### Level A Recommendations: High

- Reflects a high degree of clinical certainty

- Based on availability of high quality Level I, II and/or III evidence available using Melnyk & Fineout-Overholt grading system\* (see the "Rating Scheme for the Strength of the Evidence" field)
- Based on consistent and good quality evidence; has relevance and applicability to emergency nursing practice
- Is beneficial

#### Level B Recommendations: Moderate

- Reflects moderate clinical certainty
- Based on availability of Level III and/or Level IV and V evidence using Melnyk & Fineout-Overholt grading system\* (see the "Rating Scheme for the Strength of the Evidence" field)
- There are some minor flaws or inconsistencies in quality of evidence; has relevance and applicability to emergency nursing practice
- Is likely to be beneficial

#### Level C Recommendations: Weak

- Level V, VI and/or VII evidence available using Melnyk & Fineout-Overholt grading system\* (see the "Rating Scheme for the Strength of the Evidence" field) - Based on consensus, usual practice, evidence, case series for studies of treatment or screening, anecdotal evidence, and/or opinion
- There is limited or low quality patient-oriented evidence; has relevance and applicability to emergency nursing practice
- Has limited or unknown effectiveness

#### Not Recommended for Practice

- No objective evidence or only anecdotal evidence available; or the supportive evidence is from poorly controlled or uncontrolled studies
- Other indications for not recommending evidence for practice may include:
  - Conflicting evidence
  - Harmfulness has been demonstrated
  - Cost or burden necessary for intervention exceeds anticipated benefit
  - Does not have relevance or applicability to emergency nursing practice
- There are certain circumstances in which the recommendations stemming from a body of evidence should not be rated as highly as the individual studies on which they are based. For example:
  - Heterogeneity of results
  - Uncertainty about effect magnitude and consequences
  - Strength of prior beliefs
  - Publication bias

#### Grading the Levels of Evidence\*

- I. Evidence from a systematic review or meta-analysis of all relevant randomized controlled trials (RCTs) or evidence-based clinical practice guidelines based on systematic reviews of RCTs
- II. Evidence obtained from at least one properly designed randomized controlled trial
- III. Evidence obtained from well-designed controlled trials without randomization
- IV. Evidence obtained from well-designed case control and cohort studies
- V. Evidence from systematic reviews of descriptive and qualitative studies
- VI. Evidence from a single descriptive or qualitative study
- VII. Evidence from opinion of authorities and/or reports of expert committees

#### Grading the Quality of the Evidence

- I. Acceptable Quality: No concerns
- II. Limitations in Quality: Minor flaws or inconsistencies in the evidence
- III. Major Limitations in Quality: Many flaws and inconsistencies in the evidence
- IV. Not Acceptable: Major flaws in the evidence

\*Melnik, B. M., & Fineout-Overholt, E. (2005). Evidence-based practice in nursing and healthcare: A guide to best practice. Philadelphia, PA:

Lippincott, Williams, & Wilkins.

## Clinical Algorithm(s)

None provided

## Scope

### Disease/Condition(s)

Acute lacerations

### Guideline Category

Management

Technology Assessment

### Clinical Specialty

Emergency Medicine

Nursing

### Intended Users

Advanced Practice Nurses

Nurses

Physicians

### Guideline Objective(s)

To evaluate what method of wound preparation is most effective for promoting wound healing and reducing rates of infection for patients in the emergency department with acute lacerations

### Target Population

Patients with acute lacerations in the emergency department

### Interventions and Practices Considered

1. Wound irrigation and cleansing techniques
  - Irrigation with syringe and needle/catheter
  - Potable tap water versus normal saline
2. Irrigation versus no irrigation (cleansing or irrigation may not be required for low-risk patients)

### Major Outcomes Considered

- Infection rates
- Wound healing
- Inflammation

## Methodology

### Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

### Description of Methods Used to Collect/Select the Evidence

Via a comprehensive literature search, all articles relevant to the topic were identified. The following databases were searched: PubMed, Google Scholar, CINAHL, Cochrane Library, Agency for Healthcare Research and Quality (AHRQ; [www.ahrq.gov](http://www.ahrq.gov)), and the National Guideline Clearinghouse ([www.guideline.gov](http://www.guideline.gov)). Searches were conducted using various combinations of the key words including wound cleansing, wound irrigation, acute wound care, and traumatic wound care. Initial searches were limited to English language articles from January 2005 to October 2011. This six-year search limit was found to be inadequate due to the limited number of relevant articles found and, therefore, the time frame was removed. In addition, the reference lists in the selected articles were scanned for pertinent research articles. Research articles from emergency department settings, non-emergency department settings, position statements and guidelines from other sources were also reviewed.

Articles that met the following criteria were chosen to formulate the Emergency Nursing Resource (ENR): research studies, meta-analyses, systematic reviews, and existing guidelines relevant to the topic of wound cleansing. Other types of reference articles and textbooks were also reviewed and used to provide additional information.

### Number of Source Documents

7 documents were included in the evidence tables.

### Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

### Rating Scheme for the Strength of the Evidence

Grading the Levels of Evidence\*

- I. Evidence from a systematic review or meta-analysis of all relevant randomized controlled trials (RCTs) or evidence-based clinical practice guidelines based on systematic reviews of RCTs
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## Methods Used to Analyze the Evidence

Systematic Review with Evidence Tables

## Description of the Methods Used to Analyze the Evidence

The Emergency Nursing Resource (ENR) authors used standardized worksheets, including Evidence-Appraisal Table Template, Critique Worksheet, and Appraisal of Guidelines Research and Evaluation (AGREE) Work Sheet (see the methodology companion in the "Availability of Companion Documents" field), to prepare tables of evidence ranking each article in terms of the level of evidence, quality of evidence, and relevance and applicability to practice. Clinical findings and levels of recommendations regarding patient management were then made by the Emergency Nursing Resource Development Committee according to the Emergency Nurses Association's (ENA's) classification of levels of recommendation for practice, which include: Level A High, Level B Moderate, Level C Weak, or Not recommended for practice (see the "Rating Scheme for the Strength of the Recommendation" field).

## Methods Used to Formulate the Recommendations

Expert Consensus

## Description of Methods Used to Formulate the Recommendations

All members of the Subcommittee independently complete an exhaustive review of all identified literature, complete a separate evidence table for each topic (if possible), and then reconvene to reach consensus. Each Subcommittee prepares a description of the topic, definition, background, significance, and evidence table. The Subcommittee identifies and assigns preliminary scores for quality and strength of evidence, and describes conclusions based on the review of the body of evidence. The entire Committee reads the articles and reviews the evidence-appraisal tables for each topic and then finalizes implications for practice and the level of recommendation.

## Rating Scheme for the Strength of the Recommendations

Levels of Recommendation for Practice

### Level A Recommendations: High

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- Is likely to be beneficial

#### Level C Recommendations: Weak

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## Cost Analysis

In one published study, normal saline, 1% povidone iodine, and Pluronic F-68 (Shur-Clens®) were compared to determine which was the most efficacious in reducing the risk of wound infections in patients with soft tissue lacerations. Among the three solutions studied, the author found no significant differences in infection rates ( $p=0.571$ ). Normal saline was found to be the most cost-effective. The author noted that povidone-iodine has been found to be cytotoxic in non-human studies and that Pluronic F-68 can be cost prohibitive.

Tap water is commonly used in community settings for wound cleansing and has the advantages of being cost effective and readily available. A Cochrane review addressed the comparative effects of healing and infection in wounds cleansed with potable tap water compared to other solutions. Pooled data from three studies identified a 37% reduction in the rate of infection in wounds cleansed with tap water compared to wounds cleansed with normal saline. Data from one study showed a significantly higher rate of infection in the group that received normal saline; however, this could have been attributed to difference in the temperature of the irrigation solution. One study in the review concluded that with the use of tap water and the decrease in infection rates, supplies for irrigation and saline, an estimated \$65 million would be saved annually in the United States if wounds were irrigated with tap water as opposed to normal saline. The review also included data from two studies that included infection rates in children. Data from the studies including children showed no difference in the infection rate between tap water and saline.

## Method of Guideline Validation

Internal Peer Review

## Description of Method of Guideline Validation

The Institute for Emergency Nursing Research (IENR) Advisory Council reviews the final document for overall validity and provides feedback as appropriate using the Emergency Nursing Resource (ENR) Evaluation Worksheet. Reviews and feedback are sent to the Subcommittee to

evaluate and incorporate, as appropriate. Emergency Nurses Association (ENA) staff creates the final products for publication with input from the Committee.

## Evidence Supporting the Recommendations

### References Supporting the Recommendations

Fernandez R, Griffiths R, Ussia C. Water for wound cleaning (review). In: Cochrane Database of Systematic Reviews, Issue 2; 2010.

Hollander JE, Richman PB, Werblud M, Miller T, Huggler J, Singer AJ. Irrigation in facial and scalp lacerations: Does it alter outcome?. *Ann Emerg Med*. 1998 Jan;31(1):73-7. [PubMed](#)

Longmire AW, Broom LA, Burch J. Wound infection following high-pressure syringe and needle irrigation. *Am J Emerg Med*. 1987 Mar;5(2):179-81. [PubMed](#)

Stevenson TR, Thacker JG, Rodeheaver GT, Bacchetta C, Edgerton MT, Edlich RF. Cleansing the traumatic wound by high pressure syringe irrigation. *JACEP*. 1976 Jan;5(1):17-21. [PubMed](#)

### Type of Evidence Supporting the Recommendations

The type of evidence supporting the recommendations is specifically stated for each recommendation (see the "Major Recommendations" field).

## Benefits/Harms of Implementing the Guideline Recommendations

### Potential Benefits

Appropriate wound preparation to promote wound healing and reduce rates of infection for patients in the emergency department with acute lacerations

### Potential Harms

Wound cleansing and irrigation is an often uncomfortable and sometimes painful procedure for patients.

## Qualifying Statements

### Qualifying Statements

- The Emergency Nurses Association's (ENA's) Emergency Nursing Resources (ENRs) are developed by ENA members to provide emergency nurses with evidence-based information to utilize and implement in their care of emergency patients and families. Each ENR focuses on a clinical or practice-based issue, and is the result of a review and analysis of current information believed to be reliable. As such, information and recommendations within a particular ENR reflect the current scientific and clinical knowledge at the time of publication, are only current as of their publication date, and are subject to change without notice as advances emerge.
- In addition, variations in practice, which take into account the needs of the individual patient and the resources and limitations unique to the institution, may warrant approaches, treatments and/or procedures that differ from the recommendations outlined in the ENRs. Therefore,

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## Implementation of the Guideline

### Description of Implementation Strategy

An implementation strategy was not provided.

### Implementation Tools

Quick Reference Guides/Physician Guides

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

## Institute of Medicine (IOM) National Healthcare Quality Report Categories

### IOM Care Need

Getting Better

### IOM Domain

Effectiveness

## Identifying Information and Availability

### Bibliographic Source(s)

ENA Emergency Nursing Resources Development Committee. Emergency nursing resource: wound preparation. Des Plaines (IL): Emergency Nurses Association; 2011 Dec. 8 p. [16 references]

### Adaptation

Not applicable: The guideline was not adapted from another source.

### Date Released

2011 Dec



## Guideline Developer(s)

Emergency Nurses Association - Professional Association

## Source(s) of Funding

Emergency Nurses Association

## Guideline Committee

2011 ENA Emergency Nursing Resources Development Committee

## Composition of Group That Authored the Guideline

*Committee Members:* Andrew Storer, DNP, RN, ACNP, CRNP, FNP; Cathleen Lindauer, MSN, RN, CEN; Jean Proehl, MN, RN, CEN, CPEN, FAEN; Susan Barnason, PhD, RN, APRN, CEN, CCRN, CNS, CS; Carla Brim, MN, RN, CEN, CNS; Melanie Crowley, MSN, RN, CEN, MICN; Sherry Leviner, MSN, RN, CEN; Mary Naccarato, MSN, RN, CEN, CCNS; Jennifer Williams, MSN, RN, CEN, CCRN, CNS

## Financial Disclosures/Conflicts of Interest

Not stated

## Guideline Status

This is the current release of the guideline.

## Guideline Availability

Electronic copies: Available in Portable Document Format (PDF) from the [Emergency Nurses Association Web site](#) .

## Availability of Companion Documents

The following are available:

- ENA Clinical Guidelines for Emergency Nursing Practice Committee. Guidelines for the development of clinical practice guidelines. Des Plaines (IL): Emergency Nurses Association; 2011 Dec. 30 p. Electronic copies: Available in Portable Document Format (PDF) from the [Emergency Nurses Association Web site](#) .
- Clinical practice guideline: wound preparation. Synopsis. Des Plaines (IL): Emergency Nurses Association; 2011 Dec. 1 p. Electronic copies: Available in PDF from the [Emergency Nurses Association Web site](#) .
- CPG evidence table: wound preparation. Des Plaines (IL): Emergency Nurses Association; 2011 Dec. 8 p. Electronic copies: Available in PDF from the [Emergency Nurses Association Web site](#) .
- CPG other resources table: wound preparation. Des Plaines (IL): Emergency Nurses Association; 2011 Dec. 1 p. Electronic copies: Available in PDF from the [Emergency Nurses Association Web site](#) .

## Patient Resources

None available

## NGC Status

This NGC summary was completed by ECRI Institute on July 2, 2012. The information was verified by the guideline developer on August 13, 2012.

## Copyright Statement

This summary is based on the original guideline, which is subject to the guideline developer's restrictions.

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